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A KEY TO ALBERTA BATS[1].

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INTRODUCTION

The identification of bats is difficult for many people. This is understandable as many of the bats found in Alberta are similar in size and color. The difficulty is perhaps increased because bats are normally observed under very poor light conditions. However, most people who have occasion to identify bats usually find them in exposed situations where they can be picked up for closer examination. A word of caution must be interjected here - no one should pick up any wild mammal without using gloves. Bats are quick to bite any unprotected finger or hand and some of the larger bats can inflict a painful bite. Bats, particularly those in exposed situations, may have rabies.

The purpose of this note is to help a person identify an unknown bat. The use of this key assumes that the bat is being held in the hand of the observer.

Some points to remember: in the group of bats found in Alberta, the family Vespertilionidae, the females average larger than males; juveniles may have slightly different pelage coloration; the descriptive terms "large", "medium" and "small" are relative. For example, our largest bat is the Hoary Bat with a total wing length that ranges from 105-140 mm, our smallest bat is the Small-footed Bat with a total length of between 82-91 mm. The other bat species range between these two ranges and overlap them both. Therefore, size alone is not a definitive character but in conjunction with other characteristics, a person should be able to identify a bat in the hand.

Two terms require defining: Tragus - a skin projection in the ear. It is very prominent in all bats found in Alberta; Calcar - a bony spur along the trailing edges of the wing projecting from the foot towards the wing tip. Three species of bats in Alberta have a "keeled calcar". It may be necessary to use fingers to extend the "keel".

This key is a "dichotomous key". That is, you have two choices at each level. By selecting one of the choices and moving to the next set of choices you should ultimately be able to identify your specimen.

IDENTIFICATION KEY (EXTERNAL APPEARANCE)

1. (a) Hair brown, no frosting on hair, hair not tipped with white or silver or yellow. (4)

   (b) Hair not brown or if brown, tipped with white or silver or yellow. Overall appearance is "frosted". (2)

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2.	(a)	Large size, flight membranes well furred, "frosted" appearance.	Hoary Bat
	(b)	Medium size, hair dark or brick-red or yellowish-brown	(3)
3.	(a)	Hair dark - almost black, tips silver or brown with yellow tips	Silver-haired Bat
	(b)	Hair reddish or orange or yellow, tips "frosted"	Red Bat
4.	(a)	Calcar keeled	(5)
	(b)	Calcar not keeled	(7)
5.	(a)	Large size, pelage brown with sheen.	Big Brown Bat
	(b)	Medium to small size.	(6)
6.	(a)	Medium size, ears short and rounded, pelage reddish-brown. Length of forearm ranges between 35 and 39 mm.	Long-legged Bat
	(b)	Small size, ears medium-lengthed, black in color, pelage pale brown (sandy). Length of forearm ranges between 31 and 34 mm.	Small-footed Bat
7.	(a)	Ears long, extend well past nose when laid forward.	(8)
	(b)	Ears medium, extend to nose or just beyond.	(9)
8.	(a)	In fresh specimens, ears long (20 mm), black in color, hair light brown.	Long-eared Bat
	(b)	In fresh specimens, ears less than 20 mm, hair medium to dark brown.	(9)
9.	(a)	In fresh specimens, ears 16 mm long or more, tragus long, narrow and pointed, hair medium brown.	Eastern Long-eared Bat
	(b)	In fresh specimens, ears 16 mm or less, tragus broad and rounded, hair medium brown to reddish brown or dark brown.	Little Brown Bat

DESCRIPTION

Little Brown Bat (*Myotis lucifigus*)

This bat is probably the most common bat in the province and the bat most frequently encountered as it frequently roosts in attics.

It is a medium-sized brown bat. The pelage color is variable and ranges from a

dark, almost mahogany brown through reddish-brown, to a pale, almost yellow brown. Total length ranges from 80 to 105 mm and averages 95 mm. Depending upon the time of year, these bats weigh from 8 to 12 grams. Females average larger than males.

Little Brown Bats may be distinguished from similar sized bats by the shape of the tragus and lack of a keeled calcar. The Eastern Long-eared Bat has a narrow, tapered tragus and the Little Brown Bat has a broad, rounded tip on the tragus. The Long-legged Bat has a keeled calcar which the Little Brown Bat lacks.

Little Brown Bats are found throughout the province, but more nursery colonies have been found in the Parkland region than in other regions of the province.

Much has yet to be learned about the biology of this bat in Alberta, but a good start has been made by D. Schowalter and is reported in D. Schowalter et al (1979).

Three subspecies of this bat have been reported for Alberta:

M. lucifugus carissima is found in southern Alberta (see Smith and Schowalter 1979). It is a pale brown-colored bat and may have a whitish margin along the trailing edge of the flight membranes.

M. lucifugus lucifugus is found throughout most of the remainder of the province, north to Wood Buffalo National Park. Its pelage ranges from medium brown to reddish brown.

M. lucifugus pernox is confined to a small area in the northwest mountains and foothills. The type specimen for this subspecies was collected at Henry House in Jasper National Park, and additional specimens have been collected at Entrance (Soper 1964). It is a large, dark brown bat.

Eastern Long-eared Bat (*Myotis septentrionalis*)

This bat is not well-known in Alberta and was only recently identified as being part of our bat fauna.

This is a medium-sized brown bat. The color of the pelage is medium brown, and total length ranges from 86 to 101 mm and averages 93 mm. Weights are variable depending upon the season, age and sex, but range between 5.6 to 9.7 grams. The sexes are about the same size.

Until recently, this species was believed to be a subspecies of *M. keenii* or Keen's bat, but van zyll de Jong (1979) demonstrated that *M. keenii* and *M. septentrionalis* are two distinct species. *M. keenii* is found along the west coast of North America while *M. septentionalis* is found in eastern North America as far west as Hudson Hope in British Columbia and north to Nahanni National Park in the Northwest Territories.

This bat may be distinguished from similar sized bats by the length of its ear and shape of the tragus. In a fresh specimen when the ear is laid forward the tip extends well beyond the end of the nose. In Little Brown Bats the ear extends just to the nose. The Long-legged Bat has a smaller rounded ear, and there is a keel on the calcar which the Eastern Long-eared Bat lacks.

Nothing is known about the biology of this bat in Alberta. van Zyll de Jong (1979) believes that there may be two subspecies in the group, but as of yet only *M. septentrionalis* is recognized.

Long-eared Bat (*Myotis evotis*)

The Long-eared Bat is not frequently encountered in the province. It is found in the mountains from Jasper to Waterton and along several of the rivers in the arid regions of southern Alberta.

It is a medium-sized, light brown bat. The most distinguishing feature is the long black ears. The ears are usually greater than 20 mm in length whereas those of the Eastern Long-eared Bat are between 16 and 20 mm long, and those of the Little Brown Bat are up to 16 mm in length. The pelage is light brown with black ears and flight membranes. Total length ranges between 85 and 105 mm.

Little is known about the biology of this bat in the province, but it is believed to form colonies in buildings. It is common only west of Drumheller (Schowalter 1979). On subspecies occurs in Alberta, *M. evotis evotis*.

Long-legged Bat (*Myotis volans*)

The Long-legged Bat is relatively common along the Milk River of southern Alberta and along the mountains from Waterton to Cadomin (Schowalter 1979).

This is another of our medium-sized bats. The pelage coloration is variable ranging from medium brown to light brown. The lighter-pelaged individuals are from the southern Alberta areas. Total length ranges from 92 to 103 mm. Long-legged Bats can be distinguished from other brown bats of similar size by the presence of a keel on the calcar. The ears are smaller and rounder than the ears of Little Brown Bats and Eastern Long-eared Bats. Many references note that the lower surface of the wing has more hair than other similar species. This characteristic is not reliable in Alberta, however.

Schowalter (1980) reported what little is known about the biology of this bat in Alberta and Smith (1979) reported on morphological variation of this species in Alberta.

Two subspecies of this bat are reported for Alberta:

M. volans interior is found along the Milk River extending as far north as Lethbridge. The pelage is yellow-brown on the back and light yellow-gray on the belly (Smith 1979).

M. volans longicrus is found along the mountains north to Cadomin. It is slightly larger and darker than *M. volans interior* (Smith 1979).

Small-footed Bat (*Myotis leibii*)

The Small-footed Bat is the smallest bat found in Alberta. It ranges in size from 82 to 91 mm in total length and weighs between 4.1 and 7.1 grams.

This bat has a pale brown, almost blonde pelage with black ears and flight membranes. Because of its size, this bat should not be confused with any other bat in Alberta. There is a dark band through the eyes so that it appears to wear a mask. This species is also known as the "masked bat" as a result of this band. There is a keel on the calcar.

The Small-footed Bat is found along the river valleys of southeastern Alberta

and may be locally common (Schowalter 1979).

No one has studied the life history of this bat in the province, and other than a few locality records, very little is known about it.

One subspecies is known in Alberta, *M. leibii subulatus*.

Silver-haired Bat (*Lasionycteris noctivagans*)

Silver-haired Bats are relatively common as migrants throughout the southern portion of Alberta, although they may not be often seen by members of the general public. They are usually solitary bats and are seldom seen in clusters. They sometimes enter buildings but are most frequently encountered hanging on the outside (Schowalter 1979).

This is a medium-sized bat with a total length of between 88 to 102 mm. The pelage is dark brown, almost black, with silver or white tips. Adults are paler than young.

There is little information available respecting the life history of this bat in Alberta. A lactating female was collected in Peace River on 22 July (Schowalter et al 1978). This is a migratory bat but there is no information about where it spends the winter months. Records of occurrences in central and southern Alberta show a biomodal form with peaks occurring in mid-June and early September (Schowalter et al 1978). Most specimens collected have been adult females and juvenile males and females; very few adult males have been collected in Alberta (Schowalter; pers. comm.).

Big Brown Bat (*Eptesicus fuscus*)

The Big Brown Bat is distributed throughout Alberta, although it appears to be more common in the southern portion of the province and is rare in the Peace River Block (Schowalter and Gunson 1979). In abundance, it is the second most abundant bat species in Alberta after the Little Brown Bat.

The Big Brown Bat is the largest brown bat in Alberta and ranges in total length from 96 to 118 mm. The pelage varies from pale to dark brown and the fur frequently appears to have a glossy or oily lustre. This bat also has a well-defined keel on the calcar. No other Alberta bat should be confused with this bat on the basis of size alone. It is the only species likely to be encountered in winter outside of caves in Alberta.

The only life history study that has been done on this bat is by Schowalter and Gunson (1979).

One subspecies is reported for Alberta, *E. fuscus pallidus*.

Red Bat (*Lasiurus borealis*)

This bat is of very occasional occurrence in Alberta. Only four specimens have been collected, all from southern Alberta.

The Red Bat is a medium-sized bat with a total length of between 95 and 110 mm. It is one of the few bats, and the only one in Alberta, in which sexual dimorphism

is evident in the pelage. Both males and females have a hoary appearance, but the base color of the pelage of the male is brick red; in the female the pelage is yellow-brown. This bat is a solitary tree-dwelling species. It is also one of the few bats in which multiple births are a regular occurrence - as many as four young have been reported for one litter.

It is extremely important that all occurrences of this bat in the province are reported so that a better understanding of its distribution may be obtained.

The subspecies of Red Bat found in Alberta is *L. borealis borealis*.

Hoary Bat (*Lasiurus cinereus*)

The Hoary Bat is the largest bat found in Alberta. It weighs up to 35 grams and has a total length measurement of up to 140 mm. It is a solitary, tree-roosting bat that has been found throughout much of Alberta. Very little is known about their travels in Alberta, but they are believed to be long-distance migrators (Schowalter 1979). They are most frequently encountered in late summer.

The large size readily distinguishes the Hoary Bat from any other bat found in Alberta. It is a most handsome bat with the silver tipped hairs giving it a frosted or hoary appearance. Fur extends well on to the wing and tail flight membranes. The ears are relatively small, rounded, thick and black.

Nothing is known about the life history of this bat in Alberta. Any records of occurrence are worth recording.

The subspecies of Hoary Bat in Alberta is *L. cinereus cinereus*.

ACKNOWLEDGEMENTS

I want to thank D. Schowalter for valued comments on an earlier draft of this paper.

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THE ELLIS BIRD FARM - A HISTORY

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The Ellis Bird Farm is located in the aspen parkland region near the railway siding of Prentiss in the Red Deer/Lacombe area. On this 930-acre farm, Charlie Ellis and his sister Winnie have been encouraging Mountain Bluebirds and Tree Swallows to nest since 1955, together with an intensive and extremely effective House Sparrow and Starling control program. Although the land had been in the Ellis family since 1906, they agreed with some conditions, to sell it to Union Carbide Canada Limited (UCCL) in 1981 for the development of a petrochemical plant on a portion of the land.

Charlie began building nest boxes for the birds around 1955. The first house he put up in his yard attracted a pair of Tree Swallows. He was delighted that these beautiful and beneficial birds had chosen to nest in the home he had provided. One morning, however, the box had been taken over by a pair of House Sparrows and one Tree Swallow was dead on the nest, its head pecked open. Friends told Charlie to forget about trying to help the birds, but Charlie vowed to get rid of the House Sparrows. This proved to be a time-consuming task but his persistence won. Today the only place House Sparrows are found is in an effective sparrow trap in his yard. Every sparrow that enters the farmyard soon ends up in the trap, where it is fed and watered while it decoys in any newcomers. Each year sparrows find their way to the farm from neighbouring farmsites. Those that avoid the trap get shot or caught in a nestbox trap and are promptly disposed of.

The introduction to North America of the House Sparrow in the 1850's and their subsequent spread throughout the continent is a sad example of man's interference with the natural ecosystem. The aggressive sparrows out-competed many cavity-nestin native species, including the three bluebird species. Further problems were added by the introduction of Common Starlings. These introductions have permanently altered the ecology of almost the entire continent. All three North American blue-bird species have become threatened.

Each year Charlie set out more nest boxes. The farm is fenced into 80-acre fields and the 12 miles of fences eventually had a bird box every 70 to 100 yards. Both Tree Swallows and Mountain Bluebirds increased until almost every box in suitable habitat had a pair of birds. Because of the numbers of bluebirds on the farm, Charlie became known to people in the community as "Mr. Bluebird". Purple Martins also established homes in several apartment-style boxes in the yard.

About the same time, Charlie and Winnie began a bird feeding program. The birds responded and soon several hundred Evening Grosbeaks became winter residents. Along with redpolls, Blue Jays, Black-capped Chickadees and the occasional junco, they were soon consuming over two tons of sunflower seeds each winter. Woodpeckers

and chickadees came for suet year round and in the summer, robins ate cornmeal cake and Ruby-throated Hummingbirds darted about their nectar feeders.

It is not Charlie's way to keep records on bird numbers or other information such as hatching dates or productivity, so records of the numbers of birds and their increase over the last 25 years are not available. However, Winnie has kept some records, particularly of spring arrivals. They are deeply concerned about the welfare of each individual bird on the farm, be it a bluebird, swallow, martin, robin or Killdeer. For example, during the spring of 1970 or 1971 a prolonged wet spell occurred during the nestling stage of the Mountain Bluebirds. It is known that under these conditions the parents will temporarily desert their brood. This time, however, the rainy weather was longer than usual and most of the deserted nestlings perished. It is interesting to note that Charlie observed only birds that had some feather development were abandoned and the little naked nestlings were not. Unwilling to see preventable hazard to the birds left, Charlie proceeded to bring in every birdhouse and insulate the sides in hope of preventing a similar disaster in the future. On another occasion, Charlie found a nest of six young bluebirds at which the mother had been killed by a House Sparrow. After considering, then abandoning the idea of hand-rearing the little ones, Charlie set out to find a nest with young the same size. Finding such a nest he was greeted by the sight of six little birds in a circle, beaks out, tails in, completely filling the nest. A gentle finger made room for one orphan. Fifteen bluebird nests later (and countless swallow nests), the last of the orphans was placed in a "foster home". This activity must have meant walking over a third of the farm.

When a visitor wishes to drive through the field to see bluebirds that have just fledged, Charlie walks ahead of the vehicle to ensure that no young birds are run over. Potential nest box sites along municipal roads are not used for fear the young birds will be hit by passing vehicles.

Do the birds know Charlie? Tree Swallows use great quantities of feathers to line their nests. Charlie carries with him, during the time the swallows are building their nests, a bag of feathers. As he walks along, he drops feathers and the birds follow him picking up the feathers. At times he holds a feather in his hand and a swallow alights to take it from him. When Winnie wanted to photograph this, Charlie decided to wear his new hat for the picture. The result was that the swallows refused to come near him. Winnie's picture shows Charlie in his old hat, with a swallow on his hand. Do the birds know Charlie? I think so.

Charlie Ellis is a shy man who does not want public attention. The current situation is not to his liking and he wishes that he could keep his name out of the newspaper. When Kerry Wood, local author [and Honourary Member of FAN - ed.] first wrote about Charlie, he was informed that the publicity was not appreciated. Kerry Wood responded by naming him "Mr. Bluebird" and referring to him by that name in future newspaper articles and radio programs. He even dedicated a book, "Just for Fun", to "Mr. Bluebird", but nowhere in it is Charlie's name mentioned.

One final story about the Ellises is of note. When a pair of bluebirds took up residence just behind their house, they were delighted. However, shortly thereafter the male bluebird discovered his image reflected in the window and began to fight it. Charlie and Winnie responded by covering the window. When all the north-facing windows were covered, both main and upper story, the crisis was over. They remained covered until the end of the nesting season. (Luckily, the bluebirds never did fly around to the south side of the house!)

As they were approaching their senior years, Charlie and Winnie, both single,

became concerned that they could somehow ensure that the birds would be cared for after they were no longer able to do so themselves. On numerous occasions they had been approached by potential buyers of their land. They knew that if they did, things would change. The miles of crossfences would be taken out so the larger fields could be farmed more efficiently with large equipment. They also know that the very people approaching them showed no interest in birds on their own farms and were unlikely to do much with the birds if they bought the farm.

When approached by Union Carbide in 1980, the Ellis' agreed to sell the farm if Carbide would look after the birds and allow them life tenancy on the remaining section included in the homesite. Local naturalists and bird lovers were dismayed to hear that the new industry was to be located on the Ellis farm and UCCL was invited to discuss the future of the bird farm with a group from the Red Deer River Naturalists. As a result of continuing discussions, UCCL agreed to two major items. First a position was created on the operating staff for a wildlife biologist. In January 1981, I began to document the population and assist Charlie in regularly monitoring the birds. In January 1982, following the final approval of the plant, a new company was created called The Ellis Bird Farm Limited. This non-profit charitable company will be responsible for the future of the bird farm. The Board of Directors will include Charlie and Winnie Ellis, Walter Lindley, UCCL Plant Manager, Michael O'Brien, Red Deer River Naturalists representative, Fred Schutz, Federation of Alberta Naturalists representative, Orest Litwin, County of Lacombe representative, Morris Flewelling, Director of the Red Deer Museum, and Harold Pinel, Park Planner for the City of Calgary. This company has guaranteed funding from UCCL and may seek additional funding elsewhere. Their objectives are:

(1) To preserve Mountain Bluebirds and Tree Swallows both on the site and throughout Alberta;
(2) To sponsor research on Mountain Bluebirds and Tree Swallows and on the effect of the petrochemical industry on bird populations; and
(3) To sponsor public education programs dealing with wildlife conservation and habitat development and preservation for wildlife species.

The first official meeting of the new company is expected in April and they will be setting their direction soon as to which areas they will emphasis and what specific programs they will sponsor or undertake.

This cooperation between industry and naturalists does not happen very often, and we have not found a parallel situation.

During 1981, 57 pairs of Mountain Bluebirds and 156 pairs of Tree Swallows used the next boxes on the Ellis farm. Following the nesting season, 50 boxes were removed from the plant site to be relocated in the surrounding area. The first objective is to expand the bluebird population to the 800 additional acres of farmland that UCCL owns around the plant site. With the help of a local Boy Scout group, 250 new boxes are being built for this area. Construction on the 99-acre site started in October 1981, and by October 1984 a world-scale ethylene glycol (antifreeze) plant is expected to be operational. The impact of the construction and operation of this plant on the birds will be closely monitored and every effort made to preserve the bluebird population. UCCL inherited one of the world's best-managed Mountain Bluebird populations and are placing their plant on a quarter section that had 14 pairs on it in 1981. The survival of this population is now the responsibility of UCCL and myself. We are prepared to give it our best shot.

WHOOPING CRANE PROGRESS REPORT

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During the winter of 1981-1982, a total of 73 Whooping Cranes wintered on the Aransas National Wildlife Refuge in Texas. Two of the birds were juveniles hatched in 1981 in Wood Buffalo National Park.

The population experienced an overall loss of about five birds from the previous year, the first time since 1973 that the population has shown a decline. Through normal attrition, a small number of birds is expected to die each year but in 1981 the losses were not made up due to the poor production last year which resulted in only three chicks reaching the flight stage.

Habitat conditions in Wood Buffalo National Park have deteriorated since 1977 as a result of dry conditions which have seriously limited nesting and feeding areas for the semi-aquatic Whooping Cranes.

Small radio transmitters were placed on the legs of the three surviving young whoopers and one of them was radio-tracked from the Park to its wintering range in Texas. A second chick was radio-tracked to Glaslyn, Saskatchewan, where, in the company of its parents, it staged for several weeks feeding on waste grain. During its stop-over there, the young collided with a power line and died as a result of its injuries. The third chick was not radio-tracked and it and its parents safely reached Texas.

This spring, partly due to a cool month of May and greater-than-average winter precipitation, habitat conditions in the Park have improved somewhat.

Seven pairs of whoopers had returned this spring by 28 April, younger breeding birds and immatures continued to arrive at least until 14 May. Canadian Wildlife Service personnel located 17 nests this spring of which one was destroyed by an unknown predator. The 16 remaining nests contained two eggs each. From each of the 16 nests a single egg was removed on 28 May and the eggs transferred to Idaho where the eggs will be raised by Sandhill Crane foster parents in a continuing program designed to establish a second breeding population of Whooping Cranes which will migrate annually between Idaho and New Mexico. That second population now contains 12 wild and free-flying Whooping Cranes. Survivors of this year's transplant from Canada and from captive-produced eggs (from the U.S. Fish and Wildlife Service Research Center near Laurel, Maryland) will augment that total.

The two young birds raised in Wood Buffalo National Park (one of them in Alberta) have completed the return flight to their parent's breeding range. Both yearlings were observed in June and their radios still function.

It is hoped that CWS finances will permit cooperation with the U.S.F.W. this fall in again equipping two juveniles with small radio transmitters and, by means of light aircraft, following the two families south to their Texas winter range.

As of 29 June, nine chicks (from 12 hatched out of the 17 nests) were still alive

on the breeding range in Wood Buffalo National Park. The past month has seen little precipitation in the Park and further losses of young whoopers must be expected. If dry conditions prevail, young may starve, and dry areas invite roaming predators as well.

FOOTNOTE ON THE HISTORY OF THE TERRITORIAL NATURAL HISTORY SOCIETY (1902-1905)

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In "The History of the Federation of Alberta Naturalists and its Corporate Member Clubs" (Alberta Naturalist Special Issue No. 1, July 1981), the history of the North-West Entomological Society and the Territorial Natural History Society was outlined. In a footnote on page 41, Myres and Stiles noted that they did not know what happened to members of the Territorial Natural History Society who were living in the Districts of Assiniboia and Saskatchewan when the provinces of Alberta and Saskatchewan were established in 1905. The members of the Territorial Natural History Society who were living in Alberta established, instead, the Alberta Natural History Society, which held its first annual meeting in March 1906. Myres and Stiles asked whether the members of the old society living in Saskatchewan "were able to form a Saskatchewan society after the severance of 1905"?

Dr. C. Stuart Houston has kindly provided me with the basic answer to this question, on which he will write more elsewhere. He told me (in litt. December 31, 1981) that "the Saskatchewan people continued to use the name of Territorial Natural History Society after the Alberta group had changed theirs. . . They published bird migration dates in the annual reports of the Saskatchewan Department of Agriculture through 1909, even though Saskatchewan was now a province. . . There was apparently no organized active club in 1910 and 1911 anywhere in Saskatchewan. . . . The Saskatchewan Naturalists Club was organized on 18 July 1912. . . and the Saskatoon Naturalists Club on 29 April 1915." So, the dates of existence of the Territorial Natural History Society are 1902-1905 in Alberta, and 1902-1909 in Saskatchewan. Dr. Houston referred me to pp. 30-31 and 164 in E.M. Callin's Birds of the Qu'Appelle, 1857-1979 (Saskatchewan Natural History Society, Special Publication No. 13, 1980) for published information on the collection and publication of bird migration notes in 1907-1909 by members of the Territorial Natural History Society active in Saskatchewan after that society had been renamed in Alberta in 1905.

OVERHEARD. . .

"My concern is not over the mere deaths of individuals but over the deaths of species. Individuals are replaceable. A species once dead is the end, forever, of something that succeeded and was perfected through time too long to comprehend."

by Yorke Edwards from "Rare and Vanishing Wildlife" reprinted by permission of The Canadian Publishers, McClelland and Stewart Ltd., Toronto

CHESTNUT-BACKED CHICKADEE - A NEW SPECIES FOR ALBERTA

by Geoffrey L. Holroyd
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In the latest edition of The Birds of Alberta (W.R. Salt and J.R. Salt, 1976, Hurtig Ltd., Edmonton) the Chestnut-backed Chickadee is listed as hypothetical. Previously, there were two sight records: one on November 12, 1939 at Kananaskis Forest Experimental Station, Seebe, Alberta (R.D. Usser 1940, Can. Field-Nat. 54:75) and two in September 1973 near Limnet Lake, Waterton Lakes National Park by Carson Wade.

From December 23, 1979 to April 7, 1980, three Chestnut-backed Chickadees were observed and photographed at Waterton by various observers including Tony and Ann Bull, Simon Lunn, Michael O'Shea, Carson Wade and Sharon Woodward. On October 31, 1981, a single Chestnut-backed Chickadee was photographed by Reinhold Lang at his feeder at 341 Beaver Street, Banff. This bird did not reappear. Copies of the photographs are on file with the Alberta Ornithological Records Committee.

These recent photographs confirm the presence of Chestnut-backed Chickadees in Alberta although this species is still rare in the province. The moist coniferous forests of Waterton Lakes National Park are worth searching for nesting pairs of this species.

I thank Reinhold Lang, Simon Lunn of Waterton Lakes National Park and Peter Boxall of the Provincial Museum of Alberta for providing details of the above sightings.

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Compiled by David M. Ealey and Martin K. McNicholl

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SOME INTERESTING PUBLICATIONS

by Virginia Young

During the course of editing the Alberta Naturalist, a rather large amount of mail crosses my desk. This mail consists largely of correspondence, announcements, a certain amount of environmental "junk mail", and publications. Among these publications are not only the well known (Nature Canada, Canadian Field-Naturalist et al) but several, listed below, which AN readers may not be familiar with but might find of interest:

BirdScope. A 10-per-year 4-page newsletter aimed at the more serious birder, BirdScope lists recent sightings of rarities in North America and around the world, new journals, rundowns on endangered birdlife, birding hotspots, birding organizations and other data of interest to birdwaters. $15 per year. Write: BirdScope, P.O. Box 236, Allen Park, Mich. 48101.

Canadian Plains Bulletin. The CPB is the official newsletter of the Canadian Plains Research Centre. Its purposes are to keep others informed about the work of the Centre and to develop a community of research and discourse in the broad field of Canadian Plains studies. The Bulletin is available on request. Write: Canadian Plains Research Centre, Univ. of Regina, Regina, Sask. S4S 0A2. [This publication is not specifically environmental, and of only passing interest to most naturalists. However, it contains interesting short notes of ongoing research, listings of upcoming seminars and programs, major conferences, and regularly features "Publications Received" and "New Prairie Books", all of which include whatever environmental topics ongoing.]

Citizen's Bulletin. Published bi-monthly, this 16-page newsletter is a joint publication of Friends of the Earth and Environment Canada, which provides information on the actions and concerns of environmental groups. Subscription is free. Write: Citizen's Bulletin, Suite 53-53 Queen St., Ottawa, Ont. K1P 5C5.

Environment Views. "Published bi-monthly by Alberta Environment. Each issue deals with a specific topic from various viewpoints with the aim of increasing awareness of environmental issues among Albertans. The views expressed by the publication are not necessarily those of Alberta Environment." Subscriptions are free. Write to Environment Views, Alberta Environment, 9820-106 St., Edmonton, AB T5K 2J6

INFO-EARTH - A Catalogue of Reviews. A free guide to the best books on energy and the environment. Write: Info-Earth, P.O. Box 138, Stn. B, Ottawa, Ont. K1P 5C3.

Alberta Wilderness Association Newsletter. 20+ page tabloid published twice per year, a "must" for keeping up with environmental issues in the province. Write: Alberta Wilderness Association Newsletter, Box 6398, Stn. D., Calgary, Alta. T2P 2E1. $8 per year.

IUCN Bulletin. Quarterly 25+ pp. journal published by the International Union for Conservation of Nature and Natural Resources. Informative magazine including detailed updates on endangered species/habitats. $30 per year, US. Write to: Membership Services, IUCN, Avenue du Mont-Blanc, 1196 Gland, Switzerland.

Birdfinding in Canada. A bi-monthly 12+ page booklet "designed to identify where birds are to be found and also provide a medium of exchanging information among birders". It features seasonal bird reports, articles about "hotspots" throughout Canada, and listings of subscriber's life lists. Aimed at the dedicated "lister", but of interest to all birders. $10 per year. Write: Birdfinding in Canada, P.O. Box 519, Kleinburg, Ont. LOJ 1C0.

Environment Update. Published by Information Directorate, Environment Canada, Ottawa, Ont. K1A OH3. Free. [A recent issue included articles about wildlife specimens seized by CWS in accord with the CITE, Environment Canada's new Public Consultation Policy, Kouchibouguac National Park problems, and forestry in Canada.]

Central Alberta Naturalist. A membership in the Red Deer River Naturalists now brings not only a newsletter, but a quarterly 12-page tabloid, the Central Alberta Naturalist. The Spring 1982 issue included articles about: Endangered Species, College Bower Natural Area, Waskasoo Park, AWA General Meeting, Odyssey Update, Dyeing with Natural Materials, the badger, focus on flowers, bluebirds and blizzards (by Kerry Wood), Children's Corner, RDRN summer outing schedule, hazardous wastes. Membership: $7 single, $10 family. RDRN, Box 785, Red Deer, Alta.

Explore. This attractive, 50-60-page quarterly, focuses on outdoor recreation. A recent issue includes the following articles: Columbia Icefield Tours, Rafting the Slave River, Techniques of Orienteering, Canadian Himalaya - A Photoessay of climbing in the St. Elias Mountains, Jasper Park fishing, backpacking in bear country, plus 3 regular departments, Wildlife (Winter Birds of Alberta), Medicine (Hypothermia) and Appropriate Lifestyles (Conserver Society). $10 per year. Write Explore, P.O. Bag 4014, Stn. C, Calgary, AB T2T 5M9 [Also available at newsstands, $2.50 per issue].

Land. A free periodical published by Environment Canada providing information on Canada's land resource. Anyone wanting to be placed on the mailing list should send their name and address to: Land, Lands Directorate, Environment Canada, Ottawa, Ont. K1A 0E7 (specify French or English). [A recent issue included articles about: Housing: the shape of cities to come; pollution compensation for victims of industrial pollution; Nuclear waste and land contamination; Great Lakes pollution: working towards a solution; and much more.]

Northern Perspectives. Bi-monthly newsletter published by the Canadian Arctic Resources Committee (CARC), a non-profit organization. Resource development news north of 60°. Free (but tax-deductible donations are appreciated). Write: CARC, 46 Elgin St., Rm. 11, Ottawa, Ont. K1P 5K6.

Notice of Publications. If you are interested in occasional papers and other government publications available to the general public, write to the Information Directorate, Environment Canada, Ottawa, Ont. K1A OH3 for a copy of Notice of Publications.

Parks: An International Journal for Managers of National Parks. Historic Sites and Other Protected Areas". Quarterly magazine published by IUCN in association with Friends of Earth, United Nations Environment Program, UNESCO, Parks Canada, U.S. National Park Service, Ministere de l'Environment, DPN of France, and WWF. A recent issue contained "Christmas Island - a new Australian National Park", Guarding Paradise; Barbardos' New Marine Reserve; Ancient Tools for Contemporary Land Use","Alternate Energy Sources for Sagarmatha National Park", "Atlantic Ridley Marine Turtle Reintroduced at Padre Island, USA", "Solar Parks in Central America" and "Seat with Backrest and a Demountable Stile". [Not of interest to the casual naturalist, but of interest to persons involved with park/natural area development.]

National and Provincial Parks Association of Canada (Edmonton Chapter, #501, 10040-116 St., Edmonton, AB T5K 1V7; Calgary/Banff Chapter, P.O. Box 608, Sub. P.O. 91, University of Calgary, Calgary, AB T2N 1N4). Join either of these are you get Park News, a journal of the National and Provincial Parks Association of Canada. Slick magazine, quarterly. $10 per year.

The Bird Watch. Published 10 times per year, The Bird Watch is a communique put out by the Bird Populations Institute. Subscriptions are free upon request. However, contributions are encouraged as a major source of BPI's funding. Write: Bird Populations Institute, P.O. Box 637, Manhattan, Kansas 66502. [A recent issue included "Why are there species", detailed account of a Cooper's Hawk killing a starling, "Wild and Free Bluebirds - New Jersey's Endangered Species", and "The Backyard Birder: Single or Double Broods". A decent little publication aimed primarily at the amateur or casual birdwatcher.]

WILD ROSE COUNTRY RESOURCES & RESERVES 1982

by Martin K. McNicholl
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The 1982 annual conference of the Canadian Nature Federation was held in Calgary in July, with the Calgary Field Naturalists' Society as hosts. Calgary Field Naturalists' President, Jim Posey, chaired the local committee. The program of indoor events was arranged by a committee which I chaired, and on which Tim Myres and Allen Wiseley also sat. Mary Lore and Jim and Maryhelen Posey also had input to this program. A wide variety of field trips were held before and after this program under the chairmanship of Don Stiles. This paper summarizes the indoor program only; hopefully, observations made during the field trips will also be placed on record.

The theme of the program was "Resources and Reserves", with emphasis on Alberta and western Canada, but with broader examples where appropriate. In setting up the program, we sought to maintain a balance of natural history and convervation, reflecting the dual emphasis of naturalist organizations, such as CNF, FAN and FAN's corporate member clubs. There were four symposia and two other special presentations.

The first indoor presentation was an audiovisual display by Cliff Wallis and Cleve Wershler on the evening of 4 July. Cliff and Cleve presented "Grassland Suite", a film on the grasslands of southern Alberta, especially the Milk River area. The film

depicted various grassland types and associated life forms through both the seasons and the day, and concluded with a plea to halt the demise of this once extensive environment. Cliff and Cleve are well known for their work in this area (see Wallis and Wershler 1972).

The two symposia of 5 July were both entitled "Stewardship of Alberta Resources" with the morning symposium dealing with Part A, the Land, and the afternoon with Part B, the Rivers. The morning began with greetings from Jim Posey, University of Calgary Vice-President P.J. Kruger, and CNF President John Wilms. FAN's first President, M. Timothy Myres, then opened the first symposium, introducing former CNF President, George Scotter. Dr. Scotter spoke on "Human impact on high elevation areas and its management", co-authored by Gail Harrison. Dr. Scotter took us on a slide tour of alpine portions of Banff, Jasper, Yoho and Mt. Revelstoke National Parks, emphasizing the problems caused by over-use of these sensitive areas, ranging from litter to erosion and trampling. Having posed the problems, he then turned the program over to Gail Harrison of Parks Canada for solutions. She reviewed efforts to divert people from sensitive areas, revegetate damaged areas, decrease or prevent erosion, and educate the public to the problems. AN readers wishing to know more about these problems and possible solutions may be interested in the many papers in Ittner et al. (1979). John Stelfox of the Canadian Wildlife Service next brought us downslope somewhat with his presentation, "The eastern slopes - history, resources and stewardship". Stelfox reviewed the history of resource management in Alberta's eastern slopes, with emphasis on how various legislative acts and resource uses have contributed either to resource damage or to preservation. He emphasized the importance of watershed management and the need for increased integration among the various agencies responsible for planning in the eastern slopes. After a coffee break, CNF Conservation Director, Rick Pratt, then reviewed our knowledge of acid precipitation to date in "Acid rain in western Canada". He began with events (environmental and political) in eastern North America, and gradually shifted his focus to western Canada, notably the effects at Ft. McMurray on forests and lakes in northern Saskatchewan. More details on this urgent conservation issue can be found in Mr. Pratt's brief published in the AN (Pratt 1981) and in a recent government report (Irwin et al. 1981). As the final speaker for the symposium failed to show up (Stu Smith on "The environmental future of Alberta's oil sands program"), Tim Myres then called the four speakers back up to the stage for a liveley question period which easily filled the rest of the morning.

The afternoon session on rivers was chaired by FAN Past-President, Mary Lore. Ron Hooper of Parks Canada spoke first on "Management of wild rivers". Mr. Hooper discussed problems such as over-use of campsites, concentration of canoeists and boaters in popular areas, and educating people to the interesting features of less well-known areas, using Nahanni National Park, NWT, as an illustration. This park, which has become very popular as a wilderness adventure destination, has been the subject of numerous popular articles (e.g. Chadwick 1981; Scotter and Simmons 1972; Simmons and Scotter 1972), and is a living tribute to the efforts of George Scotter and others to have the area preserved. In the second paper, "Sold down the river", former FAN President, Dorothy Broadbent, used slides to illustrate events leading to the damming of the Red Deer River. After a long period of public input with considerable effort and time by naturalists and others, the Environmental Conservation Authority recommended against such a dam. The Alberta Government responded by going ahead with an unnecessary dam and disbanding the ECA (Broadbent 1977). John Eisenhauer ended the session with a paper, "They build dams don't they: water management planning in Alberta", in which he indicated that the Oldman River will almost certainly see a repeated scenario to that outlined by Dorothy for the Red Deer River. Mr. Eisenhauer discussed the various means by which water "needs" are artificially exaggerated, and indicated various guises in which the old PRIME scheme of diverting northern rivers into southern areas keeps threatening to re-surface. The Annual

General Meeting of CNF followed this symposium.

The morning symposium of 6 July was on Ecological Reserves, organized by CNF Past-President, Diane Griffin, and Chaired by W.A. Fuller, former Chairman of the Department of Zoology at the University of Alberta. Dr. Fuller, who was deeply involved in the International Biological Program that led to the Ecological Reserves concept, did an outstanding job of threading the five presentations of this symposium together. C. David Fowle, former Chairman of the National Conservancy of Canada, first reviewed the concept of ecological reserves and the progress to date across Canada. Bristol Foster then outlined the program in British Columbia, where 100 reserves have already been established, and many more are under consideration. He showed a film in which Dr. V.J. Krajina's outstanding efforts were portrayed. This turned out to be a prelude to the announcement at the annual banquet that Dr. Krajina is this year's recipient of the Douglas Pimlott Conservation Award of CNF. After a break, attention shifted to the research use of Ecological Reserves with papers by George La Roi and Jerry Franklin on research in northern Alberta and the northwestern United States respectively. Dr. La Roi's slides portraying his short and long-term monitoring projects in various habitats near Lesser Slave Lake incidentally illustrated the educational use of such reserves. Dr. Franklin's presentation ranged from studies of the ecological role of fallen snags to long-term forest succession and covered habitats ranging from desert to rain forest. The session closed with one of Diane Griffin's slide programs on "Alberta's natural heritage", illustrating the program of the Alberta Government for Ecological Reserves in this province. More details on Ecological Reserves can be found in papers by Foster (1980), Franson (1972) and Griffin (1982).

The last symposium, "The Rocky Mountain Region", was chaired by FAN's second President, David Spalding, on the afternoon of the 6th. Nat Rutter, Chairman of the Geology Department of the University of Alberta, set the stage by outlining the glacial events that resulted in the magnificent mountain scapes we see today. Val Geist then discussed the periglacial fauna that evolved during the four or more glacial periods discussed by Rutter. Geist used a series of comparative slides of extant and extinct forms of various animal groups, such as sheep, to illustrate that within any group, the largest and most grotesque forms tended to evolve in glaciated areas. His last illustration was of the Primates, after which Spalding invited all the large, grotesque Primates in the room to break for coffee. Geoff Holroyd of the Canadian Wildlife Service next reviewed the objectives and findings to date of the ten-year biophysical monitoring program of the mountain parks. The birder's guides to Banff and Jasper published in recent issues of the AN (Holroyd and Van Tighem 1982; Van Tighem and Holroyd 1981) are among the accomplishments of this program to date. Another former FAN President, Mike McIvor, ended the session with a presentation, "The High Country", which many members of the audience considered the highlight of the two-day program. Mike illustrated the beauties of mountain areas from tiny flowers to majestic peaks, all the time weaving conservation problems throughout. He emphasized the importance of maintaining our aesthetic appreciation and emotional attachment to nature's wonders while attempting to fight conservation issues with economic facts and ecological perspectives.

The conference ended formally with the annual banquet on the evening of the sixth. Steve Herrero of the University of Calgary was the banquet speaker. In "Swift Fox once again", he reviewed efforts to date to reintroduce this lovely mammal into Canada, where it has been extirpated since about 1938, when the last reliable sighting occurred at Manyberries, Alberta. In 1973, Miles and Bea Smeeton began a breeding program at Cochrane (see Smeeton 1980). Recently, Herrero, his graduate students, officials of the Canadian Wildlife Service and the World Wildlife

Fund have all been involved in attempts to re-establish these foxes in the wild. The first fox to be positioned on the Suffield study area decided to re-introduce itself by leaping through the open roof of its cage! The researchers from then on ensured there were better roofs, and no fox since has gone near a roof. As this is the first year of actual release, the success of the project is too early to assess, but Dr. Herrero's eloquent and amusing account provided a fitting end to a very interesting series of papers.

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CLUSTERED BROOMRAPE

by Teresa Dolman
37 Carleton Road, Lethbridge, Alberta

It is not every year that one can find the Clustered Broomrape, *Orobanche fasciculata* Nutt.; it is most plentiful in moist years. Last year, 1981, southern Alberta experienced an unusually wet spring and these plants were in abundance. This year has been somewhat drier but still the Broomrape can easily be found if looked for carefully.

It is not a conspicuous plant, growing about 3 to 10 cm high, with creamy-white flowers and pinkish stalks and lacking any green colour. Clark (1973) states that the genus name, *Orobanche*, derives from the Greek orobos, "a clinging plant" and ancho, "to strangle". This alludes to the fact that these plants are parasitic, feeding from the roots of other plants. In Britain the Broom *(Cytisus scoparius)* is often the host, hence one of the common names.

Clustered Broomrape is found in the prairies and other open areas of southern Alberta where it most often parasitizes sage-brushes, especially *Artemisia frigida* (Kuijt, 1972). Indeed, the groups sketched here were all nestled among sage-brush plants. Broomrape normally flowers in June.

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NATURALISTS' BOOKSHELF

CAVING: THE SIERRA CLUB GUIDE TO SPELUNKING

by Lane Larson and Peggy Larson. Sierra Club Books, San Francisco, U.S.A. 311 pp., illustrated. $10.95.

This book is a good introduction to the unique and special underground environment, and an overview of the sport and techniques of caving (or spelunking). The authors assume that because a person is reading the book they are among a group of people who they feel are "strongly attracted" to the cave environment. I don't feel this is necessarily true, but for those people and those who know a little about caves and wish to broaden their knowledge, this book does an admirable job. It presents many facets of cave development, minerals and physical features of caves, cave biota and meteorology, and different types of caves.

It also explains well the equipment one should have and use, and the techniques for both horizontal and vertical caving. There are good explanations and illustrations of ropes, knots, rope rigging and vertical caving equipment - harnesses, carakiners, rappelling and ascending equipment, systems and techniques. One important chapter, especially for the novice, was on potential hazards, cave safety, and first aid. The final chapter deals with cave rescue.

The authors suggest a number of ways to prepare youself for exploring caves: (a) visiting commercial caves; (b) seeking out competent local cavers, preferably through local caving clubs; (c) taking instruction in caving techniques and vertical techniques from climbing clubs; (d) reading available literature; (e) practicing above-ground techniques needed for exploration underground; and (f) maintaining your body in good physical condition.

Just by reading this book one gets an idea of the basics involved in caving. After having witnessed the lack of knowledge and "unpreparedness" of many people at a fairly accessible Alberta cave, I strongly recommend this book for novices. However, even the general public who have never been and don't desire to go underground and for active cavers, this book will be enjoyed and appreciated.

One of the magazines on the recommended reading list was the Canadian Caver. Unfortunately, the address and publishers were listed incorrectly. The correct address is: P.O. Box 275, McMaster University, Hamilton, Ontario L8S 1C0.

- Linda Hastie, 11119-72 Ave., Edmonton, Alta. T6G 0B3

A DICHOTOMOUS KEY TO THE SHOREBIRDS OF NORTH AMERICA

by Richard Mellon, 1981. Mellon Biological Services, Box 63, Morrisville, PA 19067. 24 pp., some silhouette illus.

To begin on a positive note, this key appears to be reliable in the sense that if one mentally selects a certain species and works through the key one does arrive at the bird one had in mind. But not without some difficulties, for quite early on, you choose between bills longer or shorter than "H" and only at the end of the booklet, under the heading "Definitions", do you discover "H" is head length. On page 5

you find the Spotted Sandpiper under the heading "large sandpipers", but on page 8 there it is again under the heading "small sandpipers".

There is a rare bird key where vagrant shorebirds from the Old World, some of them not yet recorded in North America, are dealt with, along with our own. As Mellon does not give scientific names there are some puzzling entries here which do not appear in Edwards' "Coded List of Birds of the World" nor in Narayana's similar list.

I cannot myself see much need for such a key. A field guide has the advantage of providing coloured illustrations, distribution maps and in the text, all the field marks used in the key. At about twice the price of the key one can buy several good field guides to the birds of Britain and Europe in which most of the Old World species in Mellon's "rare bird key" are covered.

- E. Otto Höhn, Dept. Physiology, University of Alta., Edmonton, Alta. T6G 2H7

ERNEST THOMPSON SETON IN MANITOBA 1882-1892

Papers by Ernest Thompson Seton (+Ernest E. Thompson and Ernest Seton Thompson), with a preface by Philip A. Horch, introduction by C. Stuart Houston and forewords by Robert W. Nero, C. Stuart Houston, Kenneth H. Doan and William B. Preston. Premium Ventures Ltd., Winnipeg, in cooperation with the Manitoba Naturalists' Society. Unpaginated. $11.95 (available from MNS, 214-190 Rupert Avenue, Winnipeg, Man. R3B ON2).

Prairie naturalists with an interest in history are treated in this special volume to a series of reprints of Seton papers, and to the historical insight of C. Stuart Houston and other experts on the influence of Seton on the development of the study of natural history in the prairie provinces. The book consists of reprints of papers by Seton on the major vertebrate groups in the province: mammals (1886), birds (1891, with addenda from 1893 and 1908), fishes (1898) and amphibians and reptiles (1918). Each of these subject areas has a foreword by a current authority in the field (Nero on mammals, Houston on birds, Doan on fish and Preston on amphibians and reptiles). An 11-page introduction by Houston serves as an excellent summary of Seton's Manitoba years, and includes 2 useful maps.

Houston's introduction includes a discussion of the confusion over the name of the author of the reprinted papers, and this book illustrates the source of confusion well: of the 6 papers reprinted, 3 are authored under the name Ernest E. Thompson, 2 under Ernest Thompson Seton and 1 under Ernest Seton Thompson!

Some readers of Seton's famous animal stories may not be aware that he was a respected scientist as well as a story-teller. The reprinted papers in this volume are all of scientific style, but as Nero points out in his foreword to the mammals, there is much of Seton, the popular writer, in many of his scientific works. For example, he describes an Upland Sandpiper as joining "in the varied pursuites of love, music and beetles," and a Brahma hen as reacting to a Yellow Rail by running "toward it with murder in her eye and fight in every feather". This style of writing will delight some, amuse others and irritate a few. Whatever your reaction to it, this book contains many similar examples. Although the six reprinted papers are primarily distributional in nature, the mammal paper, main bird paper and amphibian and reptile paper all contain important behavioural and ecological notes, some of which remain the best descriptions of a particular behaviour pattern in a given species to this day. Seton was a careful and conscientious observer, and although

a few errors can be found in these papers, most of his statements have stood the test of time and more intensive work by others. Errors are noted by the authors of the forewords. Most of the observations are from Manitoba, as implied in the title, but there are several from the Qu'Appelle Valley in Saskatchewan and a few from Alberta (colony of Cliff Swallows at Ft. Saskatchewan, Cooper's Hawk at Edmonton, "Blue" Geese and House Sparrow at Ft. Chipewyan).

The forewords to the various faunal groups are all brief (1-2 pp.), but point out sources of confusion, update names, and indicate Seton's few errors. These are all useful and informative, but I thought Doan's comparison of the fish fauna of today, based on Scott and Crossman's freshwater fishes of Canada (1973) with Seton's list, could also have usefully included comparisons with the subsequent Manitoba lists by Hinks (1943) and Fedoruck (1969).

On the whole, the quality of the book is good, although the fish list in my copy is somewhat blurred. The introduction and forewords are all very useful and well-written. My only complaint with the production of the book is the lack of pagination. I agree with the compilers in keeping the original pagination on the reprinted pages, but pages for this volume along the bottom of the page would make it much easier to discuss. This criticism is the minor grumbling of a bibliographer. Of greater concern, perhaps, is the usefulness of the present volume. The concept of a book containing Seton's list of various faunal groups was a good one, and the updating forewords add value to it. But the book was upstaged by its own publisher. Only 5 years earlier, the same publisher reprinted the paper on birds, which takes up about 3/4 of the present book. Although the present volume is of far greater value than the 1975 reprint, most people interested in Seton's bird work will have already bought the 1975 reprint, and probably also photocopies the two addenda (both in Auk). The The reprints of the mammals and fishes are from sources harder to obtain. Thus, to those of us interested in the history of naturalists in the Canadian prairie provinces, this book is an important contribution, but I am somewhat pessimistic on its ability to sell in large numbers.

- Martin K. McNicholl, 21857-64 Ave., R.R. 8, Langley, B.C. V3A 6H4

THE PLOVERS, SANDPIPERS, AND SNIPES OF THE WORLD

by Paul A. Johnsgard, University of Nebraska Press, Lincoln, Nebraska. 493 pp. $45.00 U.S.

In recent years a number of books have appeared dealing with individual avian orders or families on a worldwide basis. The most recent of these is by an internationally-renowned waterfowl expert, Dr. Paul Johnsgard. Since his early work on waterfowl behaviour, Dr. Johnsgard has written on a number of topics included two works of wildlife fiction and Grouse and Quails of North America. In 1978, he published Ducks, Geese and Swans of the World, and this new work is a companion to that volume. This time he deals with the Order Charadriiformes, Suborder Charadrii, the shorebirds or waders, including the jacanas, painted snipes, oystercatchers, stilts and avocets, plovers and the diverse members of the sandpiper family.

In making the transition from waterfowl to shorebirds, Dr. Johnsgard has followed what is so often a natural transition for the waterfowl biologist. One cannot help but be aware of the shorebirds which are always present wherever waterfowl occur, and be attracted by the diversity of this group. For a behavioural scientist like Dr. Johnsgard, the complexities of shorebird mating systems present an additional challenge.

In his preface, Dr. Johnsgard states that he repeatedly rejected the shorebirds as a possible topic for a sequel to his earlier book on waterfowl because of the difficulties presented by the group. Fortunately, the fascination this group held for him won out in the end. Although the members of this order in North America are the subject of a magnificent volume edited by Gardner D. Stout, The Shorebirds of North America, no work has dealt with the group on a worldwide basis since 1888. Anyone wishing to pursue their knowledge of shorebirds beyond the confines of this continent had to search through a wealth of regional works and scientific journals. At last, this information has been brought together in this one excellent volume.

A trip through The Plovers, Sandpipers, and Snipes of the World is a voyage into one of the most behaviourally complex and diverse groups of birds. In his first chapter, Dr. Johnsgard reviews the previous classifications used to establish the relationships between the members of this order and establishes the relationships between the members of this order and establishes the basis for the taxonomic system that he uses in this book. This is followed by a chapter on reproductive biology and structural diversity. The shorebirds have evolved a wide array of reproductive patterns including prolonged monogamy, seasonal monogamy, polygyny, multiple-clutch systems, and subsequential and simultaneous polyandry. Some exhibit a complete sex role reversal. Others perform on leks like many grouse species. This section briefly outlines the many patterns with examples of each. Those interested can follow these up further in the individual species accounts.

The second half of this chapter deals with the structural characteristics of shorebirds in relation to their reproductive patterns. Special sections deal with the lapwings and the snipes.

The two chapters on shorebird biology are followed by a key to families, subfamilies and tribes and by the main body of text, the individual species accounts. Each species account contains a list of subspecies and where they occur, description, and a section in natural history including habitats and foods, social behaviour, reproductive biology, and status and relationships. There is also a distribution map for each, one or more line drawings, and suggested reading for anyone wishing to research the species further. In addition to these accounts, there are two colour plates illustrating the downy plumage patterns of several representative species, colour photos of 57 species, a colour painting of an Eskimo Curlew, and black-and-white photos of 44 species. At the back of the book are a head profile identification guide, a list of the derivations of generic and specific names, a comprehensive bibliography of references (almost 500), and an index.

Overall this book represents a massive achievement and, unlike many of our modern day ornithological books, fills in a very real need for information on a complex and fascinating group. My only disappointment is with the illustrations. Many of the species are illustrated only by black and white line drawings; some only with a head profile. While many of the colour photos are indeed beautiful, some are of quite poor quality, and I personally find it difficult to compare species when photographed under highly variable conditions. Photographs are not a good substitute for painted plates illustrating all species in a comparitive manner, such as in the Peterson field guides. The black and white line drawings and head profiles do compensate to a certain extent, but I would still have preferred a good set of plates illustrating all species in colour in both the breeding and winter plumages.

While a great deal of biological information is available on some shorebird species, very little is known of others. Dr. Johnsgard has exhibited great skill in including a wealth of information covering 165 species of shorebirds within the limitations of a single volume. In doing so, he has excluded five families of un-

certain affinity. These are the thick-knees (Burhinidae), crab-plover (Dromadidae), pratincoles and coursers (Glareolidae), Sheathbills (Chionididae) and seedsnipes (Thinocoridae). These are all rather intriguing groups, not necessarily true shorebirds, but which are normally included in the Charadrii. While some of these species exhibit links with other bird groups, most are probably simply aberrant Charadriiforme families. Dr. Johnsgard deals briefly with each of these families, but does not give species accounts.

This book is a major achievement in ornithological literature, and a very valuable reference for those whose vision extends beyond their immediate confines. It is not for the casual birder, but should be considered a core volume in any ornithological library. It is a book that no shorebird aficionado could resist, and I consider it the most important addition to my library in the past year. Those familiar with the growth rate of my library will consider that no faint praise.

- Tom Sadler, Ducks Unlimited Canada,
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NEW AND RECENT RELEASES OF INTEREST

A Bird Finding Guide to Ontario, by Clive E. Goodwin. 256 pp. Univ. of Toronto Press, Toronto, Ont. M5S 1A6. $12.50 paper. [A review copy has been requested.]

IUCN Mammal Red Data Book. Review of the status of mammals found in North and South America and the Australasian zoogeographic area. 145 threatened taxa are listed. 560 pp. IUCN Publications Services, Avenue du Mont Blanc, 1196 Gland, Switzerland. $20 US plus postage.

Between Earth and Paradise, by Mike Tomkies. A celebration of living with nature as he discovered it at Shona, a beautiful coastal island in the Scottish highlands, one of the last wild areas left in western Europe. Doubleday Canada Ltd., Toronto. $19.95.

Paleontology and Paleoenvironments, by Brian J. Skinner (Ed.). Selected papers which explore the origin and diversification of life. 200 pp. John Wiley & Sons, Canada. $13.50 paper.

The Big Cats: The Paintings of Guy Coheleach, text by Nancy A. Neff, foreword by Roger Caras. 154 illustrations, 9 maps. Prentice-Hall Canada Inc. $85.00.

Elephants, by Reinhard Künkel. 256 pp. Prentice-Hall Canada Inc. $65.00.

In the tree sits an owl
On his face is a scowl
He spies a mouse
Leaving her house
And he's on the prowl.

- Mary Bailey

LOIS FENNA AND THE MINISTIK HILLS DREAM

by Martin K. McNicholl
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The Loran L. Goulden Memorial Award of the Edmonton Natural History Club is intended to recognize both outstanding work on nature in Alberta and outstanding efforts at educating others to the wonders and fragility of nature in the province. The seventh Goulden award was presented to Dr. Lois Fenna at the January 1982 meeting of ENHC in recognition of her outstanding achievements in environmental education through her operation of a field centre at Ministik Hills, northeast of Edmonton. No amount of lecturing can replace genuine experience in the field, and Lois Fenna's legacy will be conservationists of tomorrow.

Lois was born in 1931 in Hull, Yorkshire, England, but spent most of her childhood in Suffolk, where she became interested in birds. She recalls (pers. comm. 25 July 1982) that by 1946 her interests in nature had generalized, and that she was particularly influenced by visits to a field study centre. From 1949 until 1955 she studied medicine at Manchester, where she received her M.D. In 1955 she married Don Fenna and a year later they emigrated to Australia, where Lois interspersed the raising of three sons with work in hospitals and private medical practice. In 1968, the Fennas emigrated again, this time to Canada. In Canada, Lois decided against registering with the medical association, and instead returned to her interests in nature by turning her attention to ecological studies.

When I arrived at the University of Alberta in Edmonton in 1971, Lois was well into M.Sc. studies under Dr. David A. Boag. Her topic concerned the function(s) of the galliform caeca, a poorly understood portion of the intestinal tract in these birds. This work utilized her knowledge and interest in anatomy to address an environmental physiological question. Her work on Japanese Quail (*Coturnix coturnix*) and to a lesser extent Spruce Grouse (*Canachites canadensis*) indicated that the primary function of these sacs is in sorting intestinal contents, but that they also function to a lesser degree in some digestion and absorption. This research brought her the M.Sc. in 1972 (Fenna 1972) and two resulting scientific publications (Fenna and Boag, 1974a, b).

Lois' interests at that time were not confined to academic affairs, and I recall frequently encountering one or more of her sons in the hallway on the way into an Edmonton Bird Club (EBC) meeting, with Lois busy chatting inside or helping with coffee. She also hosted at least one of the after-lecture social functions for speakers in the Audubon circuit. Her involvement in EBC continues, and she is currently on the Publications Committee, having earlier served as Vice-President (1976-1977), President (1977-1978) and Past President (1978-1979).

After Lois defended her thesis, she began to talk of setting up a field station where children and amateurs could learn about all aspects of nature. This had evidently been a long-held dream, no doubt reflecting her earlier experience in England. Many people encouraged her in the idea, but most were somewhat skeptical of such a project ever taking place. Scepticism began to fade when she and Don acquired property in the Ministik Hills between Edmonton and Beaverhills Lake. The property was a 300-acre farm with habitat ranging from "slough to aspen forest" (Fenna and Fenna 1973). Initially, they operated out of one communal building

Lois Fenna in her "natural habitat"

(Fenna and Fenna 1973), but as both her nominators (Magnhild K. Johnson and Jean Burgess) pointed out in their nomination letters, the Fennas worked very hard on a low budget to fix up the old farm buildings into modern laboratory and living quarters. Those of us who have visited Lois when she was living mostly in the kitchen of a run-down farm house in contrast to her fairly luxurious Edmonton home, and saw her enthusiasm and determination as we were given a tour of the property, could not help being convinced that somehow her dream would be fulfilled. Today the centre caters to relatively large numbers of people, ranging from elementary school groups to "seniors".

The first program at Ministik was offered in the summer of 1973, when several week-long courses were held in such wide-ranging topics as art, fungi and birds (Anonymous 1973). That fall, funds were still slow in coming in (Fenna 1973), but because of enthusiastic response in the summer of 1973, a combination of day courses, nature weekends, and space for prolonged visits was planned for the summer of 1974 (Fenna 1973). That first summer also saw the first Edmonton Natural History Club (ENHC) outing to the centre, a visit that received an enthusiastic report (Park 1973). This enthusiasm continued in subsequent reports on ENHC outings there (Wolford 1974; Bembridge 1976, 1976; Weseloh 1977). An ambitious program has continued, with topics on general ecology, fungi, flowering plants, invertebrate groups,

birds and other subjects, and ranging from day courses to weekends to a week in residence (Anonymous 1977, 1978). These courses are not confined to summer activities, some being held all year, including cross-country skiing in winter (Fenna 1979c). As the courses, weekends and workshops increased in popularity, many prominent naturalists, such as Bruce Bembridge, Peter DeMulder, Myrna Pearman, Terry Thormin, Chip Weseloh and others, became involved in assisting in the work by giving courses, leading outings, etc. (Fenna 1979a). Each year seems to bring more people and a greater variety of nature topics to the program. In 1980, a weekend program of geology and astronomy was a new offering (Fenna 1980a). To help in administration and funding, a non-profit society was also planned in 1980 (Fenna 1980a). The Ministik Hills Field Study Society held its first annual general meeting at the centre on New Year's Eve 1980-1981, with a midnight star-gazing session on cross-country skis (Fenna 1981a)!

A special highlight of the Ministik Hills Field Centre program took place in the summer of 1980 when the Canadian Nature Federation chose Ministik as the site for the first CNF Youth Leadership Camp (Mackenzie 1980). This camp was a three-week event, which included a camping trip to Dinosaur Provincial Park (Fenna 1981a), and Lois received considerable praise for the occasion (Anonymous 1980; Neves 1980; Daubeny 1981).

My latest visit to Ministik was on a special field trip in August 1981 when I arrived in a bus driven by Terry Thormin. I was sandwiched between A.J. (Tony) Erskine, Ornithological Editor of the Canadian Field-Naturalist, and Valerie Freer, then President of the Eastern Bird Banding Association. I walked on Ministik paths with Peter DeMulder in the company of Kenneth C. Parkes of the Carnegie Museum, a former President of the Wilson Ornithological Society, Bob Arbib, Editor of American Birds, and the late Eugene Eisenmann, former Editor of the Auk and Chairman of the American Ornithologists' Union check-list committee. I watched birds with Brina Kessel, former Dean of Science of the University of Alaska and former Vice-President of the A.O.U. Dave Ealey and I sat at supper across the table from C. John Ralph, former Director of the Point Reyes Bird Observatory. I could go on listing a "Who's who" of North American ornithology, for I was on a field trip for the ninety-ninth stated meeting of the American Ornithologists' Union, held in Edmonton. Thus, within its first ten years of existence, Lois' field centre has hosted as a youth education facilities for Canada's top naturalist organization and as a field trip locality for North America's most prestigious ornithological organization - serving both the sages of today and the naturalists of tomorrow.

Besides educating large numbers of people, young and old, to the workings of nature, Lois has helped to make other naturalists aware of the work of her colleagues. At my request, she reviewed books by Deirdre Griffiths and Dick Dekker on Elk Island National Park and Beaverhills Lake respectively (Fenna 1979b, 1981b), and both Jean Burgess and Magnhild Johnson (pers. comm.) mention her hard work in promoting sales of Bob Lister's book on Beaverhills Lake in their nomination letters. Finally, Lois nominated Joy Finlay for the Loran L. Goulden Award in 1979 (McNicholl 1980), and Joy received word of her award at Lois' centre at another Ministik New Year's Eve (McNicholl 1980).

Lois Fenna was initially nominated for the Loran L. Goulden Memorial Award in 1978 by Magnhild K. Johnson. The award that year was granted to Bob Lister, and Ms. Johnson renewed her nomination in 1979, a year in which the award recognized educational work in honour of the Year of the Child. Lois would have been the front-runner that year had she not herself nominated Joy Finlay for Joy's long-time work in this field (McNicholl 1980). In the fall of 1981, Jean Burgess independently

nominated Lois. Always a strong contender, and with two outside nominations plus the success of the CNF program as a landmark of her efforts, the committee decided that it was high time that the Goulden award recognize Lois' dream come true.

Lois Fenna has achieved a Doctorate in Medicine, accomplished a Master's Degree in Zoology, and presided over the Edmonton Bird Club. But her legacy to the future is summarized by Jean Burgess (pers. comm. 1981), "Hundreds of children and people from all walks of life have known the privilege of absorbing rural atmostphere, of communing with nature and their lives are incredibly richer for her efforts". May the Ministik dream live on, prosper, and bear fruit in the naturalists of tomorrow!

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OVERHEARD. . .

"The attitude of the average person to the world they live in is completely selfish. When I take people round to see my animals, one of the first questions they ask (unless the animal is cuddly and appealing) is, 'what use is it?' by which they mean, what use is it to them? To this one can only reply, 'what use is the Acropolis?' Does a creature have to be of direct material use to mankind in order to exist? By and large, by asking the question, 'what use is it?' you are asking the animal to justify its existence with out having justified your own."

Submitted by Murray A. Tozer, from "Two in the Bush" by Gerald Durrell

A BIRDER'S GUIDE TO BANFF NATIONAL PARK - CORRECTION, AN 12(1): 19

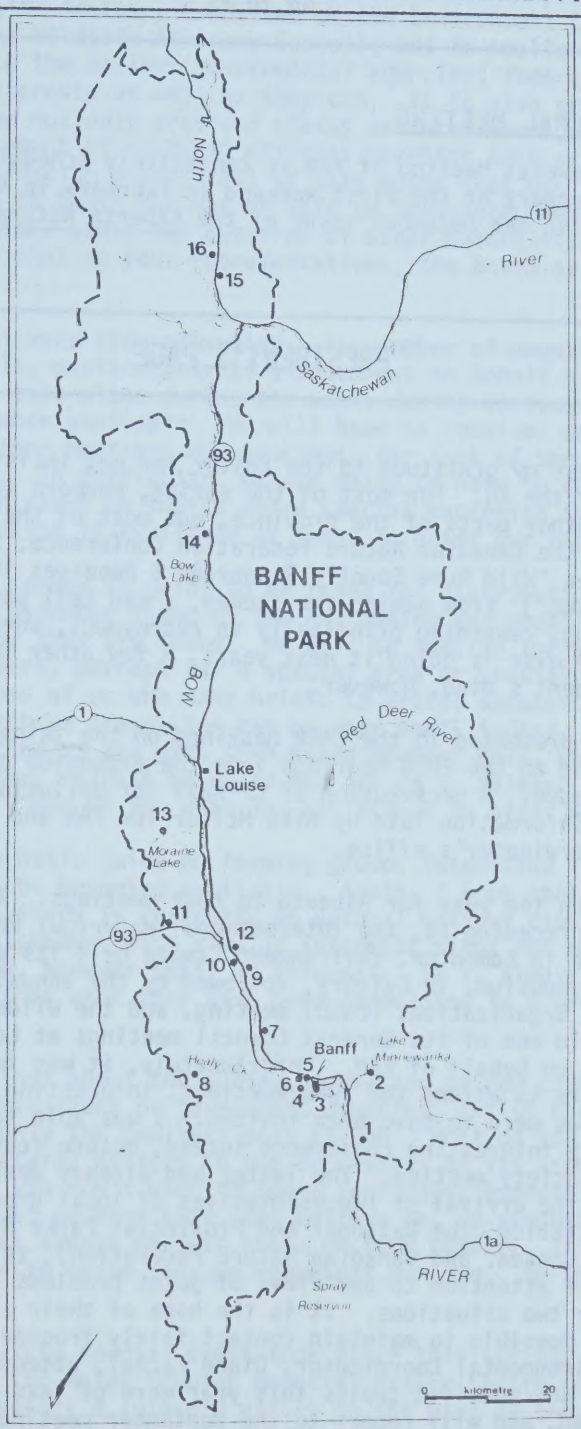

Figure 1. Birding locations in Banff National Park.

FAN NEWS

FAN ANNUAL GENERAL MEETING

The Annual General Meeting of FAN is tentatively scheduled for either the last weekend in January or the first weekend in February in Red Deer. Details will be announced in the December issue of the Alberta Naturalist.

PRESIDENT'S PAGE

I must express my gratitude to the Editor for not insisting on this column for the June issue of the AN. For most of the spring, members in Calgary, as well as many members in other parts of the province, put most of their spare time into preparations for the Canadian Nature Federation Conference, held in Calgary in July of this year. [See "Wild Rose Country Resources & Reserves 1982", by Martin K. McNicholl, this issue.] From behind the scenes, I can tell you that this is a hectic undertaking, rewarding principally in retrospect, when you can assure yourself that someone else is doing it next year! A few other things did manage to cross your President's mind, however.

Briefs were presented to the EARP Hearings on the twinning of track and tunnel in Rogers Pass and to the ERCB Hearings into the expansion of the gas plants near Rocky Mountain House. A prosecution of CP Rail for pollution of Summit Lake has begun, based on information laid by Mike McIvor for FAN and Diane Pachal for the Environmental Coordinator's office.

This has been the year for Alberta to host meetings. In addition to the CNF Conference, and preceding it, the International Waterfowl Research Bureau held its annual conference in Edmonton, Environment Canada held its major Environment Week event, a water symposium, in Calgary, followed by the annual national Environmental Non-Governmental Organizations (ENGO) meeting, and the Wilderness Society of the United States held one of its General Council meetings at Lake Louise. I was invited to each of these on behalf of FAN. Unfortunately, it was impossible for any of the Board of Directors to attend the IWRB meetings, interesting though they sounded, and grateful though we were to have been invited. I was able to attend most of the water symposium, a very interesting conference indeed, before leaving for Lake Louise for the Wilderness Society meeting. The latter had already dealt with its internal business before the arrival of representatives of local groups (FAN, the Alberta Wilderness Association, the National and Provincial Parks Association, the Sierra Club of Western Canada, and Canadian Nature Federation), so that they were able to give all of their attention to our views of joint problems and the similarities and contrasts of our two situations. It is the hope of their staff and General Council that it will be possible to maintain contact fairly frequently, perhaps on an annual basis. The Environmental Coordinator, Diane Pachal, attended the ENGO meetings briefly, though the specific topics this year were of less concern to Albertans than we had hoped, and will report to the September meeting.

It is gratifying that FAN is now invited to attend meetings of this sort, as it is that we are asked to send representatives to the Federal/Provincial Wildlife Conference, to the Public Advisory Committee of the Environment Council of Alberta, to the Alberta Fish and Wildlife Advisory Council, and to smaller, less regularly scheduled meetings with the various governmental agencies, federal and provincial, trying to serve our interests as well as they can. It is also gratifying to observe that we are now not only accorded status as intervenors, but granted the right to seek reimbursement of costs at official hearings such as those of the Energy Resources Conservation Board. All of this means that our interests will be better communicated to those who may be able to translate them into action, that we will be better-informed about the concerns of other naturalists and of environmentalists in general, that as your representatives, the Board of Directors will be more effective.

However, it is all very time-consuming. The number of people available to attend meetings is small, particularly if a statement on behalf of FAN is required. Most of these meetings take place during the week, during working hours, which further reduces the number available. We will have to consider seriously curtailing our involvement in further meetings and hearings, for lack of people to attend them as FAN representatives. In particular, we are going to have to consider not undertaking to represent our views on topics where special expertise is required, unless someone with that expertise is available at least to brief our representative.

In a few months a survey is going to be ready for distribution, which I hope can be included in the December issue of the AN, asking for people with special expertise to let us know they are there. We will be looking for all kinds of people: field trip leaders, perhaps for a special area or special groups of species; consultants to help those of us who have briefs to write; speakers. Although the time commitment for which we are asking can be very small indeed, and the information will be held as restricted as you wish (FAN Board Members only, Environmental Coordinator's office only, release by Board Members only, release by telephone, whatever), I hope that those of you with any assistance to offer will do so.

At the same time a basic guide on forming groups interested in environmental issues of any kind will be becoming available. Again, I hope that those of you who live in areas where there is currently no natural history club will consider whether some of your neighbours with similar interests might not be willing to get together and form a club, however small or informal. It is always easier to communicate our best wishes when they have been formulated in a group and presented from that base.

Whatever your feelings about the survey, formation of new clubs, attendance of FAN at meetings of organizations or government agencies, let us know about them. The Board of Directors are only the smallest part of FAN. Most of you are members of FAN because you enjoy natural history in one or several of its aspects and find a congenial group in FAN; you don't want to spend your days, especially at field meetings, sitting indoors; we know that, and believe me, we sympathize! But what we do on your behalf must always be just that: ON YOUR BEHALF. If we do not know where your sympathies on an issue lie, we represent our own. So let us know about yours!

On a final note, a very special event took place this spring: the dedication and official opening of the Helen Schuler Memorial Nature Centre in Lethbridge. This nature centre represents a splendid effort on the part of the Lethbridge Natural History Society in particular, with support from other groups and agencies along

the way, and will be a fitting medium of remembrance for one of the province's foremost naturalists. It was with pride and pleasure that I attended the dedication ceremony for FAN. - Maryhelen Posey

EDITOR'S PAGE

It appears the new deadline schedule (August 1, November 1, February 1 and May 1) is going to greatly help the AN's chronic lateness problem. With the help and cooperation of contributors, it appears - barring printing or distribution problems - this issue is going to be more-or-less on time!

Although it may be hard to get worked up about Christmas Bird Counts in August, I want to urge those of you planning new Christmas Bird Counts (or compiling established "unofficial" counts) to consider conducting your counts according to National Audubon Society guidelines and having your count results published not only in the Alberta Naturalist but also in American Birds. By publishing count data in American Birds, it becomes available to researchers throughout North America. If you want to start a new count or begin submitting an established count to American Birds, write, before November 1, to: Christmas Bird Counts, American Birds, 950 Third Avenue, New York, N.Y. 10022. Include with your letter: (1) a map of your (proposed) 15-mile (24-km) diameter count circle; (2) names of nearest adjacent counts (if known); and (3) an indication of the size and experience of your count group.

In addition, I want to remind contributors/compilers for FAN's various projects that deadlines have passed for May Day Count results, and are upcoming shortly for the Alberta Flowering Dates and Prairie Nest Records Scheme. Details for mailing of data appear in the back of this issue.

CLUB NEWS

CALGARY FIELD NATURALISTS' SOCIETY

1981-82 was a busy year for CFNS. We increased our membership, published a detailed guide to Calgary's Natural Areas, have a Bird-Finder's Guide to the Calgary Area nearly ready to go to print, made a profit on our Audubon Film series and, of course, organized the Canadian Nature Federation Conference as well as continuing our usual meetings, study groups, field trips and publications.

At the AGM in June, Jim Posey was re-elected President with Steve Hannington as Vice-President. We would like to thank retiring Directors Catherine-Ann Reeves, Estelle Kethler, Ann Machin and Jack Steeves for their work and we welcome their replacements to the Board.

Our thanks also to Mary Lore who has coordinated our Audubon Film series for several years. The new coordinator is David Dickson, and tickets (5 for $15.00) may be ordered by phoning 244-0191.

We look forward to another interesting - though, hopefully less hectic! -

year starting with our first meeting of the 1982-83 season on September 15.

- Dorothy Dickson

EDMONTON BIRD CLUB

Members of the Edmonton Bird Club begin their regular meetings for the 1982-83 season on Friday, September 17. Meetings are held on the third Friday of each month, and an entertaining and informative presentation is arranged, generally on some aspect of bird study. The EBC encourages new members to join; memberships are $5.00 for families, $4.00 for individuals.

The meeting on September 17 will be held at the usual place - Room 245, Agriculture Building, University of Alberta, starting at 8:15 pm. A short business session featuring the election of new officers and ratification of a new constitution will be held prior to an evening of member's slides. Members and friends are invited to bring a selection (about 5 or 6) of their favourite natural history slide and to share stories behind the pictures.

- David M. Ealey

CONSERVATION NEWS

NO POLAR BEAR PASS DRILLING

The government is asking Panarctic Oils Ltd. to give up its right to drill for oil and gas in the ecologically-sensitive Polar Bear Pass, Indian and Northern Affairs Minister John Munro has announced. The Pass, on Bathurst Island near the North Magnetic Pole, should be protected from resource drilling, biologists and a federal study have recommended. Munro also announced caribou hunting in the area will be banned until the territorial government decides the herd is large enough to withstand the annual kill. Munro further declared the area a National Wildlife Area. - Edmonton Journal, Aug. 3.

GREENPEACE STOPS NUCLEAR WASTE DUMPING

Environmentalists used grappling hooks to storm the British ship Gem and stop its dumping of nuclear waste into the Atlantic Ocean, the Dutch chapter of Greenpeace has claimed. The Gem, which Greenpeace claimed was carrying 2,700 tons of nuclear waste, arrived in the area 690 km northwest of the Spanish coast. In July the High Court in London upheld an injunction to restrain Greenpeace from interferring with the Gem's operations, but the Dutch branch of the organization rejected the jurisdiction and the Greenpeace vessel, Sirius, sailed from Amsterdam early in August, in pursuit of the Gem. - Edmonton Journal, Aug. 11.

MANAGEMENT AGREEMENT TO ENSURE SURVIVAL OF CARIBOU SIGNED

The first formal agreement to provide for the joint management of the Beverley and Kaminuriak caribou herds by both government and the native peoples was announced recently by Minister of Indian and Northern Affairs John Munro and Environment Minister John Roberts. This agreement provides for a joint management board composed

of eight native people - representatives of Keewatin Inuit and the Dene, Metis and Indians of NWT, Manitoba and Saskatchewan - and five representatives of the participating federal, provincial and territorial governments. The Board's mandate will be to coordinate the management of the herds in the interests of traditional users and their descendants living on the range of the caribou, while recognizing the interests of all Canadians in the survival of this resource. It will advise governments on limitations of the annual harvest of the herds and allocation of the harvest among the jurisdictions involved. It may also develop new criteria for regulating the methods of harvest, review and develop research proposals and review and monitor caribou habitat. The Canadian Wildlife Service will be an active partner in the workings of the Board. - Western Canada Outdoors 6(4).

OIL INDUSTRY MONEY TO FUND SPILL STUDIES

A newly-formed federal body will administer up to $30 million of petroleum industry money annually for environmental research into offshore oil spills. This new department could significantly increase the amount of money spent on environmental research and channel public concerns about offshore exploration more effectively to industry. In the past, the Canadian Offshore Oil Spill Research Association (COSRA) handled most industrial activities. Composed entirely of petroleum industry representatives, COSRA had an annual budget of just over $1 million. - Edmonton Journal.

WETLANDS CONSERVATION PROJECT ANNOUNCED

Ducks Unlimited President Dr. H.H. Cowburn and Associate Wildlife Minister Bud Miller have announced a 10-year, $50 million program to conserve wetland habitats. The money will be provided by Ducks Unlimited, while the province will provide the land - about 885,000 acres of marshes and uplands. The purpose of the program - the largest undertaken in Canada by any government or private organization - is to save and upgrade rapidly-disappearing marsh areas. Dr. Cowburn said the conservation program will involve 20 different marshes throughout Alberta. Projects to be undertaken include Beaverhills, Buffalo Bay-Heart River, Little Red Deer and Vauxhall marshes. - Edmonton Journal.

NAHANNI NATIONAL PARK UNDER GROWING THREAT OF POLLUTION

A lead, zinc, copper and silver mine on Prairie Creek, 20 miles from the border of Nahanni National Park is draining into the Nahanni River upstream from the Park. This is an area rich in minerals which is likely to attract more mines and pose a serious threat to the integrity of the National Park. None of the environmental concerns over the Prairie Creek Mine have been adequately dealt with; there are no plans for dealing with periodic flooding or accidental spills and seepage for the existing mine. Indian and Northern Affairs have shown no desire to develop a regional plan for the area, or request the implementation of environmental protection measures at the Cadillac Mine.

Environmentalists, fearing the proliferation of this type of resource activity, are requesting a review by the Federal Environmental Assessment and Review Office and the implementation of a regional plan. Anyone with concerns about the impact of mining on the Nahanni World Heritage Site should write to the Ministers of the Environment and Indian and Northern Affairs, Ottawa. - Dorothy Broadbent.

BANFF PARK STREAM A HEALTH HAZARD

Spot checks by Parks Canada personnel on the water flowing from Sunshine Village's sewage treatment plant have shown that the water is more polluted than before the plant was installed. The inability of the plant to handle sewage load from the ski area has led to the condemning of Healy Creek water as a health hazard. Park officials are writing conditions for sewage treatment at Sunshine and will set a compliance deadline. In the meantime, Sunshine Village Ski Corp. has been ordered by Parks Canada to truck accumulated sewage sludge from the Sunshine plant to a treatment plant in Banff.

NEW INSECTICIDE REGISTERED

A new insecticide, Deltamethrin, has been registered for use in Canada to control grasshoppers, flea beetles and Colorado potato beetles. One of the most powerful insecticides yet synthesized, deltamethrin (which will be marketed under the name Decis) has a relatively low toxicity to mammals and is reported to be non-persistent in the environment. It is applied at rates that are 10 to 100 times less than the rates currently used for organochlorine, organophosphate or carbamate insecticides. Results to date indicate that deltamethrin is biodegradable and relatively non-persistent in Lethbridge sandy clay loam. Initial residues of 35 to 50 ppb declined by 50 per cent with 3 to 7 weeks and by 90 per cent within 19 to 25 weeks. One year after application, only 5 to 7 per cent or the original residues remain. The Giant, August. [Good news. . . I think. - Ed.]

NOTES AND NEWS

BITS 'N PIECES

William W.H. Gunn has been awarded the 14th Annual Arthur A. Allen Award. Roger Tory Peterson will present this award at the annual banquet of the Cornell Laboratory of Ornithology at Ithaca, New York, on October 2 (Martin K. McNicholl) . . . The Canadian section of the International Council for Bird Preservation (ICBP) has been re-organized and now operates under the aegis of the Bird Conservation Committee of the Canadian Nature Federation. The two co-chairmen are Dr. C.E. Tull and Mr. G. McKeating. . . Among 1982 Canadian Plains Research Centre's Travel Awards are: W.J. Carlyle (for travel to study water management schemes in the Red River Plain); Bernard de Vries (for travel to assess abandoned rail-line rights-of-way as habitat refuges); and Donald F.J. Hilton (to investigate the earthworm fauna for traces of relict preglacial species). . . Dr. William C. Wonders professor of geography at the University of Alberta, has been presented with the Canadian Association of Geographers Special Award for Service to the Profession of Geography. . . Just four weeks after a herd of ten rare Arabian Oryx were reintroduced into the desert of Central Oman, one of the four females gave birth to a calf. Several other females are pregnant. The "World Herd" of captive breeding stock numbers over 150. Presently, Jordan is preparing a site for another IUCN/WWF-sponsored Oryx reintroduction. . . The Beaufort Sea Research Coalition announced their demise due to totally inadequate funding. The Coalition of 5 public interest groups was established last year to do background research on Beaufort Sea issues in order for the groups to prepare factual and responsible interventions at the EARP Hearings on Beaufort Sea development.

JUNIOR NATURALISTS' SECTION

THE STORY OF A VARYING HARE

by Grade 2, Grandview Elementary
Red Deer, Lucille Gleddie, Teacher

Tune: This Land is Your Land

As I was walking I saw a rabbit,
It hopped around me.
I wished I could have it
But it was wild so I couldn't.
It belongs to all Alberta.

They're soft and furry.
Their coat turns colour
From brown as tree stumps
To white as snowflakes.
Their ears are quite long.
Their young are born with fur.
They're not a rabbit but a hare!

I feel so badly for that wild hare;
It's ambushed in winter and summer.
But coyotes have to have something to eat,
And hares are the meat market of the land.

MY DAY WITH NATURE

by Debbie Ritchie
Grade 7, Canmore

I woke up early one Saturday morning and looked outside. I had planned to go for a walk as soon as I awoke. Today was a sunny day, just right for walking. I packed my lunch and started on my way.

As I was starting out, I remembered a friend telling me about a spring. She said it had beautiful flowers around it. She also said to pack my camera just in case I came across it.

My trip started out mostly in order to find the spring. As I walked, I kept my eyes open so I could watch for the spring. While watching for it, I came across an ant pile. It was the largest pile I'd ever seen. It stood about two feet high. There must have been something near me because it had a hole kicked into it. All the ants were scurrying about trying to repair the damage done. Ants must be able to sense danger because the ant one foot away began to join the race to save the damaged area.

The next thing I found was a beaver dam. I sat down quietly hoping to see some beavers. In a few minutes, two beavers appeared. They started swimming towards me

but stopped fairly close to the shore. Then they started rolling around in the water. I didn't want to disturb them so I quietly got up and left.

While walking I also noticed the human litter lying around the animal's homes. I decided to pick up all the garbage I could find hoping it would make the plants and animals happier.

The next thing I found and heard were the birds. There were black-capped chickadees, woodpeckers and eagles. All of these birds seemed so peaceful and happy. Their colors showed up beautifully to blend in with the surrounding environment.

It was starting to rain now but I kept moving. I slipped on my rain jacket to keep dry. I wanted to find out what nature is really like. I had come across many interesting things but so far I hadn't found anything having to do with a spring!

As I kept walking I spotted some flowers. There were lady-slippers, shooting stars, wild roses and strawberries. These flowers were yellow, pink, purple, red and white.

Just then a squirrel darted across my path. I watched him jump from branch to branch burying nuts for the winter. He, too, seemed very busy!

As I carried on my way I saw some red stakes sticking out of the ground. Right away I knew what that meant. The workmen were planning on building houses and ruining all the animals homes.

At that point it started to hail. I turned around and headed for home. I stumbled over something and fell. I looked behind me to see what it was. Here was the spring: An old car spring! It was all alone in the middle of the trees, could this be what my friend meant by a spring??

By the time I got home I was tired and wet. I sat down on my bed and thought about the plants, animals and the birds. Even though there was no wet spring, I was happy because I got to see what nature really is like!!

OVERHEARD. . .

"Teach your children what we have taught our children, that the earth is our mother. Whatever befalls the earth, befalls the sons of the earth. If men spit upon the ground, they spit upon themselves."

Submitted by Murray A. Tozer, from 1854 speech by Chief Seatle of the Duwamish League

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DEADLINES for submission of material for regular issues are: February 1, May 1, August 1, and November 1. All maps and charts should be submitted on 8-1/2" x 11" (or 7" x 8-1/2") white bond. Please indicate in light pencil any data which are to be typed on charts, maps, etc. Black and white photographs or slides, as well as line drawings, are most welcomed. Please include your complete mailing address.

DEADLINES FOR FAN PROJECT REPORTS are: Alberta Flowering Dates, October 31, Dr. Charles D. Bird, Box 165, Mirror, AB TOB 3CO; Alberta Christmas Bird Counts, January 15, Virginia Young, R.R. #1, Busby, AB TOG OHO; Species Count Day (May), Plants, J. Derek Johnson, Northern Forest Research Centre, 5320-122 St., Edmonton, AB T6H 3S5, Birds and Mammals, Al Wiseley, 202-635-56 Ave. SW., Calgary, AB T2V OG9, both plants and mammals due July 15. Compiler cooperation is appreciated.

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